REMARKS

The Section 112, First Paragraph Rejections

The Examiner has rejected claims 1, 2 and 19 under 35 U.S.C. §112, First Paragraph. In particular, the Examiner has pointed out the lack of support for the following claim language in claim 1:

> "likelihood being determined by a <u>single value based upon multiple criteria</u> .... Multiple criteria comprising natural language likelihood and <u>any combination of character row area coordinates, character type ... and character minimum circumscribing rectangle size.</u>"
> [emphasis added by the Examiner]

In response to the above rejections, the Applicant respectfully requests the Examiner to consider the following disclosures with respect to FIGURE 4 in the original application at line16, page 6 through line 22, page 7. In particular, the most relevant portions of the disclosures are underlined for the Examiner's convenience.

> The character recognition unit 124 generates corresponding character codes as well as other associated information. Other associated information includes the character recognition assurance level, <u>the coordinates of a minimal circumscribing rectangle and the size of the rectangle.</u> The outputs from the character recognition unit 124 are sent to a font determination unit 125, the title evaluation point determination unit 128, a natural language analysis unit 126 and a recognition result storage unit 129. The font determination unit 125 determines <u>a font type</u> and other associated information for each character and outputs the font information to the title evaluation point determination unit 128. Disclosures on the font determination in Japanese Patent Laid Publication Hei 9-319830 are hereby incorporated by external referenced. The natural language analysis unit 126 compares the recognized characters against a predetermined dictionary and determines whether or not the recognized characters match or resemble any of the predetermined titles or words in a dictionary. For example, the dictionary contains a set of predetermined suffixes which indicate a noun form and its corresponding statistical information. The natural language analysis unit 126 also outputs the determination information to the title evaluation point determination unit 128. A

characteristics extraction unit 127 extracts information on certain layouts such as underlining, centering and <u>the minimal circumscribing rectangle size</u> from the input image and outputs the information to the title evaluation point determination unit 128. For example, if the character size is beyond 18-point in an A4 image, the minimal circumscribing rectangle containing the characters is assigned a high score. Similarly, a high score is assigned to <u>a minimal circumscribing rectangle if a number of characters</u> or words in the rectangle is less than a predetermined number. For example, for the Japanese language, the predetermined number of characters may be set to twelve. The above and other predetermined numbers are user-definable.

<u>Based upon the information received from the above described units, the title evaluation point determination unit 128 determines the likelihood of containing a title for each minimal circumscribing rectangle and expresses the likelihood in terms of a sum of points.</u> For example, a higher number of points is generally given to a large size character set since a title is usually larger than text. Similarly, a higher number of points is generally given for a character set that is underlined or otherwise emphasized. A higher point is assigned to the natural language determination information indicating a title row such as "title:" or "re:." <u>The points are optionally weighted for each category of information. Any combination of categories of the above described information is also optionally used to determined[sic] the likelihood.</u> The title evaluation point determination unit 128 determines whether the largest sum is above a predetermined threshold value to qualify an area corresponding to the largest sum of points as a title area. A title extraction unit 130 extracts the qualified title while a display unit 131 displays the extracted title.

As underlined above, the claim amendments have been supported by the original disclosures of the current application. The claim language, "a <u>single value based upon multiple criteria</u>" is supported by the first underlined portion of the second paragraph of the above quoted disclosures. In other words, the information for multiple criteria is received from multiple units, and "the likelihood" is expressed "in terms of a sum of points" or a single value. For the second rejection basis of "<u>any combination of character row area coordinates, character type ... and character minimum circumscribing rectangle size,</u>" the Applicant respectfully requests the Examiner to consider the second underlined portion of the second paragraph of the above quoted disclosures. Since "any combination of categories of the above described information" is used to

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determine "the likelihood," the rejected claim basis has been supported. Furthermore, each of the specific criteria is also clearly supported as evidenced by the other underlined sections in the first and second paragraphs of the above quoted disclosures.

For the above reasons, the Applicant respectfully submits to the Examiner that the pending rejections under the section 112, First Paragraph should be withdrawn.

The Section 102(e) Rejections

The Examiner has rejected claims 1 through 12 and 15 through 30 and 33 through 36 as allegedly being anticipated by the Katsuyama reference under 35 U.S.C. §102(e). The Examiner has diligently pointed out a particular portion of the cited reference for almost every claimed element. However, it appears that the Examiner has failed to do so for "natural language likelihood" as explicitly recited by each of independent claims 1 and 19. Independent claims 1 and 19 each explicitly recite that "said multiple criteria comprising natural language likelihood and any combination of ...." In other words, the natural language likelihood is one of the two groups of the criteria for ultimately extracting a title.

The Katsuyama reference discloses a title extracting apparatus based upon the likelihood as measured by points. The points correspond to attributes such as "an underline attribute, a frame attribute, and a ruled line attribute of each character string rectangle, the positions of the character string rectangles in the document image, and the mutual position relation...." The title extracting apparatus thus extracts a character string rectangle with the highest points as a title rectangle. As disclosed above, the points are only based upon physical attributes of the characters in the text. The Katsuyama reference fails to disclose any attributes that are based upon natural language characteristics. Thus, the Applicant respectfully submits to the Examiner that the Katsuyama reference fails to anticipate "natural language" that is explicitly recited in independent claims 1 and 19.

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Dependent claims 2 through 12 and 15 through 18, 20 through 30 and 33 through 36 ultimately depend from independent claim 1 or 19 and incorporate the above noted patentable feature of the independent claims. Based upon the above patentable distinction, the Applicant respectfully submits to the Examiner that the rejections of claims 1 through 12 and 15 through 30 and 33 through 36 under 35 U.S.C. §102(e) should be withdrawn.

<u>The Section 103 Rejections</u>

The Examiner has rejected claims 13, 14, 31 and 32 under 35 U.S.C. §103 as allegedly being obvious over the Katsuyama reference in view of the Chen et al. reference. For the lack of the disclosure on the use of natural language in determining a title from a document, the Examiner has cited the Chen et al. reference at lines 10 through 55 in column 15. Then, the Examiner has concluded that it would have been obvious to combine the Chen et al. reference with the Katsuyama reference without pointing out any underlining motivation for the combination.

The cited portion of the Chen et al. disclosure is related to natural language. However, the Chen et al. reference is not related to the title extraction or the title search in the text. The Examiner has simply combined the Chen et al. reference with the Katsuyama reference without particularly pointing out any reason or motivation that is disclosed or suggested by either of the cited references. In this regard, the CAFC requires that the reference at least suggests motivation or a reason to combine the reference with another reference for the purpose of rejecting a claim under the section 103. *For example,* In re Rouffet, 149 F.3d 1350, 1357, 47 USPQ2d 1453, 1457-58 (Fed. Cir. 1998). The section 2143.01 of the MPEP also details the criteria for combining references as follows: "Obviousness can only be established by combining or modifying the teaching of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either explicitly or implicitly in the reference themselves or in the knowledge generally available to one of ordinary skill in the art."
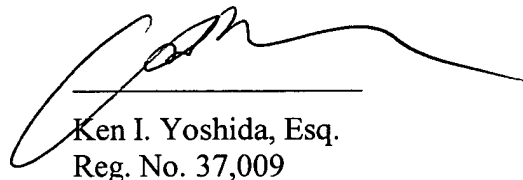
Because the use of the natural language processing in combination with other physical characteristics of text strings in identifying a title in text is not taught, disclosed or suggested, the Applicant respectfully submits to the Examiner that it is not proper to combine the Chen et al. reference with the Katsuyama reference for the purpose of rejecting the pending claims. Therefore, the Applicant also respectfully submits to the Examiner that the rejection of claims 13, 14, 31 and 32 under 35 U.S.C. §103 should be withdrawn.

Furthermore, the Applicant respectfully submits that because the disclosures of Chen cannot be properly combined with those of Katsuyama, the above section 103 rejection basis should not be applied against independent claims 1 and 19 in the future Office Action.

Conclusion

In view of the above amendments and the foregoing remarks, Applicant respectfully submits that all of the pending claims are in condition for allowance and respectfully request a favorable Office Action so indicating.

Respectfully submitted,

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